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Monterey, California

6 ANALYSIS OF MILITARY SUPPLY SYSTEMS.

9 Thesis,

10 Raymond J. Orr,

Lieutenant Commander, SC, U. S. Navy

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INTRODUCTION

From almost any aspect, the operation of todays Navy is truly big business. Certainly it has no peer in private industry when it comes to consideration of its vast supply operation. The value of the Navy's inventory exceeds eleven billion dollars and consists of more than 1,200,000 separate items. In war time, of course, inventory swells. In 1947, just after World War II the Navy had more than two and one half million items. Even in the average peace time year, not only are millions of items stored, but each item is issued on the average, of close to twenty times a year. This does not mean that every item is issued twenty times a year, for many items are stored that have no issue history in a years time, which further complicates the supply problem. Demands on the system are considerable, however. For example, in fiscal year 1959, the number of demands on the Navy Supply System totaled 20,922,009. At one Navy Supply activity alone, the Naval Supply Center Bayonne, which is neither the largest nor the smallest supply center, material is issued at the rate of 4,800 separate items each day. The job of procuring, receiving, storing, accounting and issuing this mass of material falls to the Navy Supply System.

The primary emphasis of this paper will be to analyze the past, present and future of Navy Supply. Since there exists a trend to consolidate various phases of supply, within the Department of Defense and, because the use of joint commands is increasing, a working knowledge of supply systems in use in the other military services will be useful. Because of this, a broad analysis will be made of the Army and Air Force Supply Systems. Additionally, the effect the Single Manager concept has and, will have, upon Navy Supply will be made.

The problems of supplying military organizations are vast and complex. The attack to these problems should be in the spirit advanced by Admiral Arleigh Burke, USN, when he spoke the following words, relative to problems in general:

> The first thing you should remember is: these problems are not solvable. All you can do is work towards solutions, live with them successfully, stay on top of them and make solid progress towards a better Navy.
>
> The second thing you should remember is that a knowledge of the history of these problems is essential. You can't start in from now. You must start in from some place far back. And the history is different as you look into the different problems. In order to make an intelligent assessment of the problems you must know the history of problems. That is why we have been hammering on knowing money, knowing force levels, knowing organization, and it doesn't matter what job you have, you must know the history, the background of all these problems.
>
> The third thing is that change is inevitable. It's inevitable in people. It is inevitable because of different people. It is inevitable because of circumstances, and so the problems must be kept under continuous review.
>
> And fourth, none of these problems are outside of your own bailwick.
>
> None of these problems can be ducked. You can't say, "That one is not mine." They are Yours.[1]

---

[1] "CNO To New Flag Officer Selectees, August 18, 1958", as noted in, Vice Admiral George C. Dyer U.S. Navy (Retired), Naval Logistics, 1960, p. viii.

This paper, then, is an effort to cope with and understand, the complex problems of military supply.

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ANALYSIS OF MILITARY SUPPLY

CHAPTER I

BACKGROUND OF NAVY SUPPLY

EARLY HISTORY OF NAVY SUPPLY

The question might well be asked, "In this modern age of nuclear energy and jet air travel and when we are exploring the vast reaches of space, why bother about looking to the past and concerning ourselves with the history of Navy Supply?" The answer is quite simply, that we study the past so that we may shape a better future, as efficiently as possible with the least amount of waste from trial and error. Although a thorough analysis of the history of Navy Supply is not possible in this work, we will endeavor to outline the major steps taken in the development of the present Navy Supply organization and, in doing so, will indicate some of the errors made in the past so that, if possible, we can side step them in the future. George Santayana very aptly championed the study of history when he said, "Those who cannot remember the past are condemned to repeat it!"

Navy Supply had its genesis on February 23, 1795 when the Office of Purveyor of Public Supplies was created. Its mission was the supply support of six wooden frigates constructed under the Naval Armanent Act of 1795. Six "pursers", one for each of the frigates, were appointed by the President and given the rank of warrant officer. Although these persons were given military rank, all other persons on shore who handled supplies and pay of the Navy were civilians. One of the requirements for appointment required of pursers during this period was that they be able to speak French and Spanish with sufficient fluency to transact business in foreign posts. Although the need to outfit the ships was well recognized, it was not until three years later, on April 30, 1798 that the Navy Department was established and the need for a separate organization to run the Navy was recognized. The next step in the logistic chain of events occurred in 1814, when three officers were designated a Board of Commissioner's whose functions were to "discharge all the ministerial duties of the department relative to the procurement of naval stores and materials, and the construction, armament, equipment, and employment of vessels of war, as well as other matters connected with the naval establishment."[2] This organization did not function effectively and on August 31, 1842 five bureaus were created to administer the Navy. Among these, was the Bureau of Provisions and Clothing.

The assignment of duties to the Bureau was a classic for brevity. The Bureau of Provisions and Clothing was "charged with provisions of every sort; all labour employed thereon; all contracts and accounts relating thereto." The phrase "all labour, contracts and accounts relating thereto" appears at the end of the duty assignment of each of the five bureaus and it is assumed that orginally, the Bureau of Provisions and Clothing had no responsibility for keeping the appropriation; cost and property records for the Naval establishment as a whole; only for its own expenditures.

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[2] John D. Long, The American Navy, Vol. I, p. 102, 1903.

During the fiscal year 1885, the several bureaus (the five had been increased to nine), acting independently of one another made 166 open purchases of coal (without competition), 299 open purchases of stationery, 499 separate open purchases of lumber and hardware, totaling $121,315 and spent $46,000 for oils and paints in 269 separate purchases. Mr. Whitney, the Secretary of the Navy at the time, noted that eight bureaus supplied ships with stationery and three furnished lamps and lanterns. Since the law authorized the assignment of duties to the Secretary, Mr. Whitney made comprehensive reforms relative to supply functions of our early Navy. He consolidated the business of conducting purchases in the Bureau of Provisions and Clothing, and made the Paymaster-general responsible for them. In order to check unecessary accumulation of supplies and to reduce the expenditures for purchases made, the general storekeeper system was created and the Bureau of Provisions and Clothing was charged with the keeping of property accounts. The same goals strived for by Mr. Whitney in 1880's; that of checking "the unecessary accumulation of supplies and to reduce the expenditures for purchases made" are still high on the list of goals for our present defense establishment.

In June of 1860, the title, "pursers" was abandoned for the word "Paymaster" and the duties of civilian Navy Agents and Naval storekeepers were taken over by officers of the Pay Corps. In 1871 the "Pay Corps of the Navy" was offically established and lasted until 1919 when it was changed to Supply Corps. The name of the Bureau was changed in 1892 from the Bureau of Provisions and Clothing to the Bureau of Supplies and Accounts.[3]

Before leaving the early history of Navy Supply, one incident relating to the first "supply overhaul" should be related. In 1909 the Secretary of the Navy directed that at the next overhaul visit of a ship to a navy yard, the stores and portable equipment were to be taken ashore and spread out for inspection. It was suspected that many items carried were excessive either as to kind or quantity. The allowance for the ship was established by having each department head estimate items required for six months and, only these items were to be returned to the ship. An experienced officer of the Pay Corps stated that several ships, including his own, after going through this process, left behind about 75% of the stores that had been landed for survey and inspection.

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[3] In this discussion I have relied mainly on the following:
RADM.,Julius A.,Furer, Administration of The Navy Department in World War II, 1960.
and,
John T. Long, The American Navy,Vol. I, 1903.

The above incident prompted General Order No. 78 which stated:

> On and after October 1, 1910 the Pay Officer, herein after referred to as the ships general storekeeper, shall have charge of the accounts and the custody of all supplies and equipage not actually in use, except coal, ammunition, Marine Corps and Medical store. His responsibility for the articles of equipage "in use", as distinguished from those 'in store' --shall be limited to keeping the accounts and records there of.

Whether this action helped to minimize excess stocks aboard ship or not, is open to conjecture.

NAVY SUPPLY DURING WORLD WAR II

Procurement

The Pre-war functions of the Bureau of Supplies and Accounts included purchasing, storage, issue and shipping supplies for the Navy. During the four years of World War II, these functions were greatly expanded and, except for purchasing, remained virtually the same. The biggest change of Bureau of Supplies and Accounts functions relative to World War II was the elimination of procurement as a sole BuSandA responsibility. Under the procurement method adopted, the technical bureaus negotiated a far greater money value of contracts than did BuSandA; nevertheless, the determination of allowable costs on all contracts was BuSandA's responsibility. During World War I, the Compensation Board had been created and, working independently of BuSandA, determined allowable costs under cost-plus and similar type contracts. The Board was abolished in

1942 and "its duties" were transferred to BuSandA. Prior to World War II, all of the Navy's material requirements, both for the fleet and shore establishment (with the exception of medical supplies, ship construction and some ordnance material) were procured through BuSandA. The principles of competitive buying applied to all such procurement and, as could be expected, nearly all contracts were on a fixed price basis.

The War Production Board issued a directive on 3 March 1942 requiring negotiation for all Navy purchasing. Since BuSandA was normally not in a position to negotiate contracts for large and complex end products due to lack of technical personnel qualified to enter into the negotiations, the Secretary of the Navy in December 1943, issued a directive which left it to the discretion of each Bureau head, whether he would negotiate and execute contracts in his own bureau or have BuSandA do it. Although the technical bureaus favored this directive, BuSandA did not.

This change in the Navy's procurement procedure took place because of the urgent and over-whelming demands of wartime. BuSandA had visualized its wartime role as simply an expansion of its traditional peacetime functions. It conceived of its primay task as one of procurement coordination including the final functions of purchase. Insufficient action was taken by BuSandA to enable it to perform these functions when war came, however.

Another area in which BuSandA failed to take sufficient action was in its indifference to inter-service attempts to plan for wartime procurement. There was a lack of awareness that stepped-up procurement would bring conflicts of interest with the Army and the civilian economy. Immediately prior to World War II BuSandA declined to participate in procurement planning with the War Department because of ---"a narrow attitude created by unwillingness to surrender any of its traditional authority of functions to any other agency, either intra- or inter-service."[4]

Over all coordination of the Navy's material procurement activities was actually accomplished during the war by the Office of Procurement and Material which was created in January 1942. In addition to coordinating procurement for the various bureaus this office acted as a laison in policy matters between the War Production Board and the Navy Department. Eventually this office became the Office of Naval Material whose charter, when established in 1948, states that the office shall "effectuate policies of procurement, contracting and production of material throughout the Naval Establishment and plans therefore----."

Inventory Control

In March 1942 stocks on hand were equivalent to approximately five months issues at current rates. At this point the Bureau of

---

[4] Julius A. Furer, RADM USN, Administration of the Navy Department in World War II, p. 442.

Supplies and Accounts issued a directive setting the stock limitations on a years future needs, to be determined by the judgement of personnel concerned. By 1944, excesses became a problem as a number of items reached their top limits and it was evident that some stocks would continue to build above their top limit. This problem was partially offset by the installation of machine accounting which permitted current reports on inventory and by the establishment in the BuSandA of an Inventory Control Office. Anyone who had experience with the gigantic excess material at the close of World War II knows that the problem was extremely costly to the American taxpayer and a very complicated one.

A major difficulty in the path of successful inventory control was the lack of standardization of nomenclature which had resulted from the decentralization of procurement. As a result, Navy storehouses were filled with an unnecessarily large range of kinds and sizes of items. In one yard, for example, in separate bins, the same type of lamps were held as "lamps", "fixtures" and "lights".

THE INTEGRATED NAVY SUPPLY SYSTEM

To eliminate the defects that had developed in the Navy's logistic support system during and after World War II, Secretary of the Navy Forrestal on 14 February 1947 approved a new "integrated system." The basis for this new system lies in the differintiation made between the technical functions of administering material and the supply functions. The new integrated system emphasized that the performance of the technical functions was a responsibility of the designated technical bureau and the supply function is essentially the same regardless of the particular material area being considered. Because it is the same, management of the supply tasks is best accomplished by centralization under one bureau.

The integrated system provided that control of the major end items of equipment - the expensive, infrequently issued items such as guns, air frames or large engines would remain in the hands of the cognizant technical bureaus. The smaller equipments, such as repair parts and consumables, those whose supply functions are essentially the same, are controlled by one central office. This central office is called a supply demand control point. The "marriage" of the technical and supply functions is effected at the supply demand control point. At this point technical guidance is received from the parent technical bureau. Supply guidance for all the supply demand control points (there are currently 13 separate control points) is received from the Bureau of Suppliesand Accounts.

With this brief review of the history of Navy Supply we are in a position to concern ourselves in some detail with the Army, Navy, Air Force and Single Manager systems. With this completed, we can then make some conclusions relative to the future of Navy Supply.

CHAPTER II

GENERAL

In this chapter, an introduction into the general aspects of modern military supply systems will be made. In addition we will consider some of the criticisms that have been levied at the supply role of the Military Departments. Subsequent chapters will discuss the separate supply organizations of the Army, Navy and Air Force. Chapter VI will discuss Single Manager operations and the role of the Armed Forces Supply Support Center. Unfortunately the scope of this paper will not permit a detailed investigation into each of the military supply systems. An analysis of each system will be made by considering the mission of each of the Military Services and the supply organization structure within each service. The inventory control and distribution arrangement for each service will also be discussed.

Before embarking on an explanation of the specific supply systems of our three armed services however, it is necessary to define some supply terms and to determine the scope of the problem in terms of money value and items managed. It is also necessary to ask, "What is the problem and why should we concern ourselves with military supply systems?"

Military supply items may be divided into three main categories. These are referred to as commercial items, non-commerical common items and peculiar items. Commerical items are those items required by the military services which are generally used throughout the civilian economy. These are available through normal commercial distribution channels and are frequently referred to as "off-the shelf" items. Non-commercial common items are those used by two or more of the military services which are not "commercial" as defined above. Peculiar items of material are those used by one military service, except for items of similar manufacture or fabrication which may vary between services as to final color or shape. Included in this latter category would be such items as clothing and vehicles which are not considered to be peculiar items.

The total value of material assets for the four military services as 30 June 1957, was 36.4 billion dollars. This figure represents the total value of wholesale stocks, which are items not "in the hands of troops." Items in the hands of troops means items such as ships in the fleet, aircraft, and tanks which are unit equipment of Armies or Marine Divisions. Of the 36.4 billion dollars of wholesale stocks assets, only 1.9 billion or 5% are commercial "off-the-shelf" items; 17.3 billion or 48% are non-commercial common items and 17.1 billion or 47% are non-commercial items peculiar to one service.[5]

In 1957, 3.2 billion items were carried in wholesale stocks. Of this total, only 633,000 items or 19.5% were commercial, "off-the shelf" items; 1.02 billion or 31.5% were non-commercial common items and 1.5 billion or 49% were items peculiar to one service.[6]

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[5] "The Evaluation of Concepts for the Integration of the Military Supply Systems," Team 4 DOD Logistics Systems Study Project, December 12, 1957, Vol. I.

The question, "What is the problem and why should we concern ourselves with military supply systems?" can be answered by considering two facts:

1. the broad impact the Defense Department has on the American economy and
2. Congressional control exercised over the military which makes it absolutely necessary that we operate our supply system as efficiently as possible.

Since the Department of Defense receives over 60% of the annual Federal Budget, it is absolutely imperative that this huge annual outlay be managed with the greatest possible efficiency if our Nation is to remain strong. Without a competent, effective, operating supply management system, large quantities of items and commodities will be wasted. Our materials and money must be conserved or efficiently used if our Nation and the American way of life is to endure.

In addition to Congressional criticisms, the Hoover Commissions, the Rockefeller committee report, the Hook committee report and hundreds of other reports, both public and private, have criticized the present supply systems.

Criticisms made on the military supply systems are many and varied. Among the most frequent ones made by Congress are the following:

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[6] Ibid.

Poor inventory turnover, duplication and oversupply.

Inadequate inventory accountability and accuracy.

Lack of unified inventory practices.

Poor space utilization in warehousing operations.

Need for integration of warehouse space.

Procurement of goods declared surplus.

Poor distribution practices with unecessary transportation-(An oft cited example of this occurred in 1951 when the Army shipped a trainload of tomatoes from the east coast to the west coast while at the same time, the Navy was shipping a trainload of tomatoes from the west coast to the east coast.)

Overbuying with inaccurate statement of requirement.

The Hoover Commission of 1955 limited its criticisms to five broad areas:

1. Lack of unified inventory management practices so that total inventory could not be determined.
2. Lack of Standardized documents, forms and reports including uniform accounting procedure.
3. Lack of programing or phasing of inter-Service support agreements.
4. Lack of adequate follow-up on implementation of DOD directives and
5. Lack of coordination between the services which results in overbuying, competition for industrial capacity and uneconomical use of distribution media.--

With a view toward understanding the vast military supply complex, an analysis of current systems in use will now be made.

CHAPTER III

THE ARMY SUPPLY SYSTEM

ORGANIZATION AND MISSION

The Army supply system like that of all the military departments is governed by the broad policies established by the Department of Defense and, of course, by the mission given to the Department of the Army. Broad Department of Defense supply policy is set forth in DOD instruction 4000.8. The mission of the Department of the Army is as follows:

> The Department of the Army is charged with the responsibility of providing support for national and international policy and the security of the United States by planning, directing, and reviewing the military and civil operations of the Department of the Army, to include the organization, training and equipping of land forces of United States for the conduct of prompt and sustained combat operations on land in accordance with plans for national security.[7]

The principal aid to the Secretary of the Army in supply and logistic matters is the Assistant Secretary of the Army, Logistics. Under the functional control of the Assistant Secretary of the Army (Logistics) is the Deputy Chief of Staff for Logistics (DCS/LOG). This officer, with the chiefs of the technical services, has the primary responsibility for operating the Army supply system.

The Deputy Chief of Staff for logistics was established in 1954 to replace the assistant Chief of Staff, G-4. While the Assistant Chief of Staff, G-4 directed and controlled the technical services, the responsibility for providing the men and money to accomplish their missions resided with the Assistant Chief of Staff for Personnel, G-1 and the Comptroller of the Army. His authority therefore was diluted, and because of this, it was necessary in both 1918 and 1942, after the start of hostilities, to reorganize so that the efforts of the technical services could be effectively controlled and coordinated. Now, the Deputy Chief of Staff for logistics exercises full control over funds, personnel and administration of the technical services.

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[7] United States Government Organization Manual, 1958-59, June 1, 1958, p. 143, Mission.

The seven technical services who operate the supply system under the DC/S for logistics, are organized around commodity groupings. This means that each technical service is responsible for coordinating the development, procurement, inventory and distribution of an item within their commodity sphere. The following lists the broad commodity groupings of each of the seven technical services:

1. Chemical Corps - Chemical, biological, and radiological warfare materiel.
2. Corps of Engineers - Engineering and construction equipment
3. Ordnance Corps - Ordnance material including general purpose and combat vehicles and ammunition.
4. Quartermaster Corps - Food, clothing, petroleum, general supplies, and aerial supply equipment.
5. Signal Corps - Signal communications, electronic, photographic, pictorial, communication security and cryptological devices and materiel.

6. Army Medical Service - Medical and dental supplies.

7. Transportation Corps - Army Aircraft, marine floating, and military rail equipment.

The heads of the technical services also command troops and head up class II and class III installations. Three of the above technical services are primarily supply agents. These are: the Quartermaster Corps which provides for the welfare of the individual soldier, the Ordnance Corps and the Chemical Corps. The supply operations within the other four technical services are geared to the service function and each technical service is its own best customer.

The technical services accomplish their supply mission through National Inventory Control Points and Depots that determine requirements, procure, receive, store, issue, maintain, and dispose of the items for which they are individually responsible. A summary of inventory control and depot operations follows:

INVENTORY CONTROL

The national inventory control points (NICP's) are responsible for the worldwide management of minor secondary items and repair parts under the supervision of the heads of the respective technical services. Supply actions relative to requirements computation, budgeting, funding, distribution, procurement and rebuild of principal and major secondary items, require the specific approval of the Deputy Chief of Staff for Logistics. These items however, are under the routine management of the NICPs, and as a result, there is only one place within the Army where all the functions involved in the inventory management of an item are located. The NICPs, like inventory control points in the other services, do not physically handle material but are responsible for all the inter-related functions involved in the inventory management of an item. They are responsible for cataloging, requirements computation, procurement, distribution, disposal and financial management.

Current policy, relative to inventory management, provides for selective management of item classes so that items which account for the heaviest dollar inventories and turnover receive closer, more frequent attention and more detailed reporting than slow moving, low value items. The inventory control system segregates items into three classes: items under $1,000 annual demand, items from $1,000 to $10,000 annual demand and those items over $10,000 annual demand. For items with less than $1,000 annual demand assets and demand are reported only for the depot system in the CONUS; recurring or non-recurring demands are not reported. These items are scheduled for regular procurement only once each year or every two years. The higher value demand items, those with demand in excess of $1,000, receive correspondingly closer and more frequent attention and are normally procured at least twice each year so that inventory levels will be held to a minimum.

In order to streamline operations and avoid duplication within a technical service, certain common functions are provided within a technical service. An example of this can be shown for the Corps of Engineers. There are two NICPs for this technical service; one has worldwide management responsibility for Engineer end items and the other for Engineer repair parts. The preparation of Catalogs, negotiation and award of contracts, inspection, rebuild and disposal are not performed by each NICP, but by common agencies within the Corps of Engineers under the instruction of each NICP.

The NICP is a relative newcomer to the field of Army supply having been introduced in 1956. Prior to its inception the inventory function was divided between two agencies. The *Supply Control Point* determined and procured requirements and the *Stock Control Point* managed items already in the system. The NICP has come a long way in integrating, within commodity areas, functions requirements determination, supply distribution and procurement. By so doing, the NICP has enabled the Army supply system to handle its inventories more efficiently and economically. Prior to consolidating supply functions in one activity, a clear demarcation of functions did not exist. Now, there is only one activity in the Army where all the function's involved in the inventory management of an item are located and the responsibility is clearly established.

DISTRIBUTION OF SUPPLIES

The Army distribution system is centered around 44 depots. Eight of these depots store the stocks of more than one technical service and are called general depots. The other 36 are called branch depots and store stocks of only one technical service. Both general and branch depots may hold stocks for any of the other services under inter-service support agreements. In 1954 the Army had 73 Depots in their distribution complex. Through new and improved communication facilities which permit central inventory control in the NICP, it has been possible to reduce the number of Depots required. Further reductions may be accomplished. Under the concept of the branch depot, which stores material for only one technical service, there sometimes occurs crowding in one depot with empty space in another. The problem is being studied and further reduction of depots may result.

ARMY SUPPLY PROJECTS

In order to keep stocks at the overseas field activity level as low as possible while at the same time keeping "down-time" of equipment to a minimum, a project known as the "Modern Army Supply System" (MASS) is being experimented with for repair parts. This system relies on rapid data transmission of requirements with premium transportation, when justified, to permit immediate supply of items from central storage as soon as demanded. Field Activities stock only fast moving items. These are defined as items having three demands in a six month period. By application of this principle one activity reduced items carried from about 100,000 items to 37,000 items. Using rapid data transmission plus rapid transportation, overseas shipping time has been reduced from 80 days to anywhere from 20 to 60 days. Although firm information is not available to the writer, there is indication that the experiment has not had an adverse effect on equipment. As an example, during the nine month period after the commencement of the experiment, down-time of combat vehicles went from 5.3% to 3.1% and artillery from 5.2% to 1.4%.[8]

The Army recognizes the disadvantages to a single criterion for stocking an item and is therefore reviewing the criterion of stocking an item if it has an issue history of three every six months. Military essentiality aside, it may be uneconomical to stock an expensive item meeting this criterion and vice versa it may be more economical to stock inexpensive items even though they don't meet this criterion. -- Studies are being made constantly, as in all the services so that the supply function can be accomplished as economically as possible.

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[8] DOD, Supply Management Reference Book, June 1958, p. 71

CHAPTER IV

THE NAVY SUPPLY SYSTEM

ORGANIZATION AND POLICY

The policy of the Navy Department has been expressed by the Secretary of the Navy, as being to:

> Maintain the Navy as a throughly integrated entity in sufficient strength on the sea and in the air to uphold, in conjunction with our other Armed Forces, our national policies and interests, to support our commerce and our international obligations, and to guard the United States including its overseas possessions and dependencies.

The primary function then is to create, support and maintain the Operating Forces, whose job it is to support this policy. This Chapter will be devoted to the support phase of this function, as it pertains to the furnishing of all the material necessary for the Navy to carry out its mission.

The primary responsibility for supply matters in the Navy rests with the Assistant Secretary of the Navy (Installations and Logistics). He is responsible for policy, management and control of production, procurement, supply and distribution of material, and the acquisition, construction, management, maintenance and disposition of facilities.

Under the ASN (I&L) is the Chief of Naval Material who is responsible for effectuating policies of procurement, contracting and production of material throughout the Naval Establishment and for determining the procurement and methods to be followed by the Naval Establishment in meeting the material requirements of the operating forces. The determination of these requirements is done by the Deputy Chief of Naval Operations (Logistics) who also is charged with the responsibility of coordinating the logistic efforts of the bureaus and offices of the Navy Department.

The Chiefs of the six Bureaus (BuMed, BuPers, BuSandA, BuShips, BuWeps, BuDocks) are known as the Naval Technical Assistants, and as such, they advise the Secretary of the Navy, the Civilian Executive assistants and the Chief of Naval Operations. In the supply field, the bureaus are responsible for the development, procurement and production of major items of material. In more detail this involves the following functions:

Research and Development
Determination of requirements
Technical supervision of cataloging and storage
Inspection, manufacture and maintenance
Design

INVENTORY CONTROL

The Navys counterparts of the National Inventory Control Points of the Army, are the Supply Demand Control Points. Like the NICP, the SDCP does not store or physically handle material, but does perform inventory control functions for small equipments, repair parts and consumables. Their specific functions in this area are:

1. Requirements determination
2. Procurement
3. Distribution
4. Item identification
5. Development of standards for packaging and preservation
6. Estimating storage space requirements
7. Performing budgetary and financial functions relative to their specific commodities.

As was stated earlier design, development and inventory control, including procurement functions, for major items are vested in the appropriate technical bureau. There are about 39,000 items controlled by the bureaus of which 11,000 are ammunition items. Total value of bureau controlled material is about $8 billion. The supply demand control points manage roughly 1,100,000 items with a value of $5.6 billion.[9]

There are presently thirteen supply demand control points. These offices with a brief description of commodity areas they manage are as follows:

General Stores Supply Office (GSSO) Philadelphia, Pa.
Material having common Navy wide use--hand tools, hardware bar and sheet metal, paper, hose, packing.

Aviation Supply Office (ASO) Philadelphia, Pa.
Parts peculiar to Naval and Marine Corps aviation; photographic and aerological equipments and parts.

Ships Parts Control Center (SPCC) Mechanicsburg, Pa.
Ship's hull and machinery repair parts.

Electronics Supply Office (ESO) Great Lakes, Ill.
Electronics repair parts.

Ordnance Supply Office (OSO) Mechanicsburg, Pa.
Ordnance repair parts.

Yards and Docks Supply Office (YDSO) Port Hueneme, Calif.
Vehicle and Construction equipment repair parts.

Fuel Supply Office (FSO) Washington, D. C.
Solid fuels, petroleum and related products, asphalts and coal tars.

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[9] DOD Supply Management Reference Book, June, 1958.

Navy Ships Store Office (NSSO) Brooklyn, N. Y.
Articles for resale in ships stores and commissary stores; service operations included therein.

Training Device Supply Office (TDSO) Port Washington, N. Y.
Equipments used in the training of personnel.

Forms and Publications Supply Office (FPSO) Byron, Ga.
Assigned forms and publications in widespread use in the Navy Dept. and field activities.

Navy Clothing and Textile Office (NCTO) Brooklyn, N. Y.
Retail stocks of special and standard items of clothing apparel, and textiles.

Navy Subsistence Office (NSO) Washington, D. C.
Retail food stocks for the subsistence of personnel.

Navy Medical Material Office (NMMO) Brooklyn, N. Y.
Retail supplies of drugs and biologicals; hospital supplies and equipment; dental supplies and equipment.

Five of the SDCP's listed above should no longer be classified as such for they operate as retail management offices and operate in areas covered by DOD "single managerships." (Single Managers are covered in Chapter VI). The Navy Medical Material Office, Navy Subsistence Office, Navy Clothing and Textile Office, the Yards and Docks Supply Office and the General Stores Supply Office all operate, in their respective spheres, as inventory managers for Navy-owned retail stocks of items coded for Single Manager Control. As such they will compute and furnish to Single Managers, routine peacetime requirements for retail stock, furnish requirements for pre-positioned war reserve stocks, and general mobilization reserves. In addition they will budget for funds for retail stocks.[10]

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[10] For Additional information on Navy Retail Offices see (BuSandA Instruction 4400.31 dated January 17, 1961.)

A close parallel between the Armys NICPs and their relationship with the heads of the technical services, and the SDCP's and their relationship with Navy bureaus, could be made. In both instances technical direction is given to the inventory points--by the Bureaus in the Navy and by the Head of the Technical Services in the Army. One important distinction between the SDCP and the NICP should be made however. That is, that in the Army, the Head of the Technical Service has full management control over the NICP that manages his specific commodity. In the Navy, centralized management control over the SDCP's is vested in one activity, the Bureau of Supplies and Accounts. The Chief BuSandA renders technical direction to the SDCPs in supply functions such as warehousing issue, shipment and requisitioning. BuSandA is also responsible for standardization of procedures and methods used in the SDCPs and for an evaluation of their performance. The bureaus, on the other hand, give only technical direction to the SDCPs.

Navy Material is managed through a number of techniques. Among the most common with their definitions are:

Stock Coordination--A process whereby an item, group or category of material is assigned to one of the SDCPs. Assignment is made by the Bureau of Supplies and Accounts. This eliminates duplicate stocking of an item and insures standardization.

Program Support--An assignment of support responsibility to a SDCP for an equipment or group of equipments. This responsibility entails the assurance that all items required for that equipment are available in the Navy Supply System.

Supply Support--An assignment of support responsibility to a SDCP for an individual item or class of items.

Allowance Lists--A document which prescribes the on board quantities of equipment and repair parts for an ship or squadron of aircraft.

Fractionation--The process of segregating material into arrangeable groups of items having similar characteristics such as those having field activity control, fast moving items, insurance items, slow moving items, etc.

Stratification--The process of segregating inventory holdings dollar-wise into broad groupings based on the purpose for which held. These purposes are current operating stocks, mobilization reserve and excess. Excess is further broken down into economic reserve, Reserve for contingencies and excess for disposal.[11]

DISTRIBUTION OF SUPPLIES

Navy material is distributed to its consumers through the unit supply officer. This officer receives his material either from direct purchase or through the Navy distribution system. The distribution system consists of Naval Supply Depots and Naval Supply Centers, supply departments of ship yards, air stations and other large activities and underway replenishment groups and mobile support groups. These latter groups are any ships whose function it is to store and transport supplies to ships located outside CONUS.

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[11] For further discussion of these techniques see Supply Support of the Navy, (Nav SandA Publication 340), September 15, 1957.

The Navy Distribution System ashore is broken down into activities which are known as reserve stock points, distribution points, primary stock points or secondary stock points. This method is known as echeloning and is a system of classifying in a general way major supply activities of the Navy. The supplies of these activities are replenished in one of two ways. Replenishment is the result of action taken by a SDCP based on reports sent to them by the activity (in this case the activity would be called a reporting activity) or the activity initiates a requisition to the SDCP (in this case they would be classified a non-reporting activity). The definition of the various echelons are as follows:

> Reserve Stock points-- These reporting activities carry reserve and backup stocks for the supply system. The reserve stock points maintain storage facilities for the bulk storage of material.
>
> Distribution points--These reporting activities carry stocks for the supply support of designated continental and extra continental primary stock points, and they also are assigned supply support responsibility for one or more of the following: secondary stock points in the area, extra-continental secondary points, fleet units, yard and district craft.

Secondary stock points--These points, which are normally non-reporting activities, carry stock for their own consumption and for the support of assigned yard and district craft and aircraft. Secondary stock points are all shore activities, which are not classed as one of the other "echelons." Secondaries determine their own routine replenishment requirements and submit requistions to a designated source of supply.

There are presently four supply centers in CONUS, two on the east coast and two on the west coast. These centers can be equated with the general depots of the Army in that they stock supplies under the cognizance of each supply demand control point. In addition to these centers there is one center in the Hawaiian Islands and ten supply Depots; six of which are in CONUS and the balance overseas. Other activities that play a major role in distributing supplies are the Navy shipyards. There are six on the East Coast, four on the West Coast, and one, Pearl Harbor, in the Pacific.

CHAPTER V

THE AIR FORCE SUPPLY SYSTEM

ORGANIZATION AND MISSION

The primary mission of the Air Force entails:

> Defending the United States against air attack; gaining and maintaining air supremacy; defeating enemy air forces; controlling vital air areas; establishing local air superiority except as otherwise assigned; formulating joint doctrines and procedures in coordination with the other services, for the defense of the United States against air attack, and providing the Air Force units, facilities and equipment required therefore; strategic air warfare, organizing and equipping Air Force forces for joint amphibious and airborne operations; furnishing close combat and logistical air support for the Army; providing air transport for the armed forces except as otherwise assigned; providing Air Force forces for land-based air defense; developing, in coordination with defense from land areas; providing an organization capable of furnishing adequate, timely, and reliable intelligence for the Air Force; furnishing aerial photography for cartographic purposes; developing, in coordination with the other services, doctrines, procedures and equipment employed by Air Forces in airborne operations.[12]

The overall planning and policy concerning procurement, production, storage, maintenance, distribution, and disposal of supplies and equipment rests with the Assistant Secretary of the Air Force for Material. The Deputy Chief of Staff, Material directs the establishment and maintenance of the Air Force supply systems and provides staff laison with the logistics element of the DOD and the Departments of the Army and Navy.

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[12] United States Government Organization Manual 1958-59, June 1, 1958, p. 184, Purpose.

Material support for the Air Force is provided by the Air Material Command. This command has the primary responsibility to provide logistic support to combat commands in order to maintain them in a constantly combat ready condition. This AMC, headquartered at Wright-Patterson Air Force Base in Ohio, buys, stores distributes and repairs the bulk of the technical equipment and supplies used by Air Force units. The operating Units of the AMC are the Air Material Areas (AMA) and the Air Force depots. In the CONUS there are fifteen depots and eight of these serve as the headquarters of an AMA. Both the depots and the AMA have the functions of purchase, storage and distribution of stocks, but the headquarters of an AMA has additional functions of providing technical assistance to bases in its area and for operating extensive aircraft overhaul activities.

INVENTORY CONTROL

The AMC operates the supply system by implementing procedures down to the airbase level, where it maintains technical control.only. At the Airbase level, the tactical commander maintains control over his own supplies but furnishes prescribed information to the AMC on stock status, rate of issue and on requirements for unit equipment items.

The Air Force supply system involves the management of 1,335,000 separate stock numbered items. Of these, 800,000 are procured, stored and distributed by AMC depots; 400,000 are provided by the Army, and 135,000 are purchased locally.[13]

Prior to the Korean War, the inventory control functions of requirements determination, procurement and funding was all done at the Headquarters of the AMC. During this time it became evident that the heavy work load at the AMC headquarters was adversely effecting the supply system. To eliminate this, the inventory function was decentralized in what is known as a "prime depot."

Under the Air Force system, any class of supply is stocked at only one eastern and one western depot. The dividing line between the eastern zone and the western zone is the Mississippi river. For each class of items, one of the depots is designated as a prime depot and the other is known as the "opposite depot." The prime depot keeps a record of worldwide depot stocks and computes requirements, initiates procurement or disposal action, and controls worldwide distribution of the classes of property it is responsible for. In this regard, it is the inventory manager for the class of items. Like the Army and Navy, major items of equipment, such as complete aircraft, are controlled by the central agency; in this case, the Air Material Command.

To this point, we have discussed inventory control in the Air Force from a commodity managed standpoint. Inventory control is also accomplished in the Air Force through means of "weapons system" management. The objective of weapon system support management is to vest in a single agency the authority and responsibility for complete supply support of an air vehicle, and to provide within AMC a single agency for Air Force using commands to refer all matters concerning supply support of a particular air vehicle. The system provides for a single requisitioning and distribution control point for all users of the weapon, regardless of where they may be located.

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[13] John C. Lackas, Military Supply Management, ICAF, 1954.

The weapons system approach involves considerable changes in storage distribution and other supply responsibilities. For this reason, it has been introduced gradually. The B-52 and F-102 are under weapons systems managers, but the B-47 which has existed for several years is not. Neither has the weapons systems management approach been applied to certain new aircraft such as the B-66 which were produced in small quantities.

One of the serious problems in the weapons systems approach is in handling the large percentage of items common to two or more systems. One step in trying to solve this problem has recently been taken. The procedure instituted involves each weapon system support manager computing gross issue and stock level requirements for the higher cost items and also forecasting returns from base repair that can be used to satisfy these requirements. The prime commodity depot will consolidate these requirements for all weapons systems and other requirements for all weapons systems and determine need for procurement. The results of this program are not yet available but one thing is certain; by centralizing the procurement functions in the prime depot, efficiency and avoidance of duplication can result. The disadvantage is that it will not be possible to hold the weapons system manager fully responsible.

DISTRIBUTION OF SUPPLIES

The Air Force has taken steps to convert gradually from the bizonal supply system to a single point distribution system. Under this system, the prime supply depot would receive all requisitions, and effect distribution. This change was prompted by the introduction of weapons system management, which placed many items under single point distribution, and also through the introduction of faster means of communicating data. The development of high speed data transmission makes control of stocks at a central location easier.

Much Air Force material is moved by airlift. Economy through its use has been achieved in a two fold manner; first, in terms of reduction of depot stock levels and second, by creating a domestic logistics air cargo service, that permits the attainment of economy of operation, while providing a scheduled means of delivery.

One program that has enhanced the use of air transportation to distribute supplies has been the hi-value program. Under this program, which recognizes that a small percentage of the items account for a large volume of the money, there is strict control over delivery, stockage, issue and repair. Airlift is utilized to keep pipeline stocks to a minimum. As an example, it has been estimated that if surface lift were used for aircraft engines rather than the currently used airlift, an additional $186.1 million worth of engines would be required, just to fill the additional pipeline requirement.[14]

In emphasizing air movement, the Air Force recognizes that mobility will be the chief characteristic of future supply systems. The development and improvement in this method of transportation plus rapid communication through means of transceivers will go a long way toward making Air Force Supply responsive to future demands placed upon it.

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[14] Ibid., p. 100.

CHAPTER VI

SINGLE MANAGER PROGRAM

In order to effect economies in procurement, storage and distribution of material, the Department of Defense has assigned supply management responsibility to one service under the Single Manager Program. This Program traces its origin back to June 1, 1948 when the Secretary of the Air Force was given broad responsibilities for providing airlift for all the services. In August 1949, the Secretary of the Navy was given similar responsibilities for providing sealift. Although neither of these assignments were called "Single Management" at the time, they have become known as such throughout the years. The first "Single Manager Plan", after the sealift and airlift assignments, was in the subsistence commodity area. The Secretary of Defense on 4 November 1955 created the Military Subsistence Supply Agency, (MSSA) under the Army. Over half the purchases made by MSSA have involved direct shipment from the vendor to the consuming installation. The MSSA has a range of 1,400 items.

Other single manager assignments that have been made are:

The Military Clothing and Textile Supply Agency. (MC&TSA) Also under the management control of the Army, this agency was created in May 1956 and, like the MSSA, has full responsibility for net wholesale requirements, procurement, inspection and distribution. The MC&TSA has a range of 30,000 items but only 12% of its inventory are items used by two or more services.

Military Petroleum Supply Agency. (MPSA) This agency, under the management control of the Navy, was created in July 1956. Unlike other single managers, it does not own stock nor compute requirements. It does procure petroleum products for all the services and arranges for distribution to overseas commands. In addition, it has the responsibility of coordinating POL distribution, positioning of mobilisation reserves and operating stocks and for promulgating interservice Supply Support Agreements. MPSA has a range of approximately 1000 items.

The Military Medical Supply Agency. (MMSA) The DOD created this agency in May 1956 under the management control of the Department of the Navy. Its functions include requirements determination, procurement, inventory control and cataloging. There are 8,300 items under its control and 85% of these are common to two or more services.

The Military Traffic Management Agency. On 6 August 1957, the Secretary of the Army was designated the Single Manager for Traffic Management. The objective of this agency is to eliminate duplication in the traffic field and to insure economy in the procurement, use, cost and control of commercial transportation services required by military agencies for the movement of freight and passengers between points within the United States.

The Military Industrial Supply Agency. (MISA) This agency was assigned to the Department of the Navy in November 1959 and is scheduled to be fully operational in April 1963. It has responsibilitiy in the Hardware, paint, metals and abrasives commodity area, for net requirements determination, procurement and distribution. This agency, when fully operational, will have an item reange of 410,000 items.

The Military General Supply Agency. (MGSA) This agency, was created in November 1959 and is under the control of the Department of the Army. It is scheduled to be fully operational in October 1961. The commodity area includes hand tools, and adminstrative and housekeeping supplies and equipment. It has an item range of 60,000.

The Military Automotive Supply Agency. (MASA) This agency was created on May 11, 1960 and, under the management control of the Army, has the responsibility of net requirements determination, procurement, cataloging and distributing military automotive supplies. It is scheduled to be fully operational by July 1962. When fully operational, it will have a range of 200,000 items.

The Military Construction Supply Agency. (MCSA) This agency, like MASA, was created on May 11, 1960 under the Management control of the Department of the Army. It has the responsibility of net requirements determination, procurement, cataloging and distribution for construction supplies. It is scheduled to be fully operational by July 1962 and will have an item range of 130,000 items.

In addition to the above agencies there has been recommended that a Defense Electronics Management Center be established. This center, as recommended, would be managed by the Armed Forces Supply Support Center and would be operated under the direction and control of the Secretary of Defense. It has been recommended that this agency be fully operational in July 1964. When fully operational it will have an item range of 650,000 items.

Although each of the Single Manager Agencies differ in some degree, they have a similar organizational pattern. Each of the Single Managers (who are the Secretaries of the various Military Departments) appoints an Executive Director to be responsible for the management and efficient operation of the agency. Each director is assisted by an administrative committee composed of representatives of each military service. The individual services forward their gross requirements to the Single Manager, who in turn computes the overall net requirements. The requirements are purchased by a revolving fund by the Single Manager , and this fund is reimbursed by department funds as single manager material is purchased by the military services. To distribute stores, the Single Manager selects the depot which can best support all military activities in a designated area. This depot may belong to any of the military services.

The Single Manager Program was an outgrowth of the public criticism levied at the military supply systems for areas of duplication among common - use items. It is fairly well recognized that existing single manager systems have proved effective and have received customer approval and satisfaction, at least equal to pre-single manager supply systems for the same commodities. Economies too, have been achieved. Concurrent buying has been grealy eliminated. There has been reduction in the number of back hauls and cross hauls, a reduction of inventories, warehouse space and a stimulation of item reduction and standardization programs. As an example of one economy that has been made - that of reduction of storage space, it was found in studies made in 1958, that under the subsistence single managership, non-perishable wholesale stocks are now concentrated in nine instead of twenty-five locations. Relative to clothing, under the MC&TSA, stocks will be stored in thirteen instead of forty-six depots, and 3.78 million square feet of space will be conserved.[15] All this is not to say that single managerships do not have problems and can effect no further economies. On the contrary, much must still be done. For example, peacetime operating stock levels of each of the military services, in single manager commodity areas, vary without an apparent explanation. The same holds true for mobilization requirements. Another problem is in the area of incomplete standardization programs which hampers bringing items into the Single Manager bailiwick. Much too can be done in the area of finance. For instance, single managers operate wholesale stock funds and each of the four services operates retail stock funds. Much study and effort should be applied to simplifying all of the budgeting and accounting required.

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[15] Logistics Systems Study Project, Integrating the Management of Commercial and Common Items of Supply, p. II-5.

It is interesting to speculate what the final result of the Single Manager Program will be. The most far reaching supposition is that there will be a Single Manager (in the form of an expanded Armed Forces Supply Support Center), of the Single Managers and we will then have our fourth service of supply. The fourth service of supply was proposed by the Hoover Commission on Organization of the Executive Branch of the Government in 1955. In their report to the Congress, recommendation eight stated: "Congress should enact legislation establishing a separate civilian managed agency, reporting to the Secretary of Defense, to administer common supply and service activities.[16] This concept is at the other extreme from a DOD Single Manager Evaluation group which made the following statement in 1960:

> Single Manager concept should not be expected to solve the fundamental supply problems of the Department of Defense. Neither the Single Manager plan nor any other form of consolidation will solve the problems that arise from bigness itself or those which stem from the complex relationship of strategy, technology, logistics, and the national economy. The Single Manager plan just be viewed in perspective as but one element of a comprehensive program of supply management.[17]

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[16] Business Organization, of the DOD - A Report to the Congress, June 1955, p. 45.

[17] Hearings Before a Subcommittee of the Committee on Government Operations House of Representatives, April 25-26, 1960, p. 133.

This subject is treated further in the next chapter, "Summary."

The Armed Forces Supply Support Center and Council. The impact of the growth of the Single Manager concept, from a few thousand to over three quarters of a million items, from simple supply support to technical program management has made it necessary for the Department of Defense to exercise some type of control and direction through one agency. This agency is the Armed Forces Supply Support Center (AFSSC).

The AFSSC was established in June 1958 under the authority, direction and control of the Secretary of Defense. The center operates under the direction of the Armed Forces Supply Support Council. The chairman ofthis council is the Deputy ASD (S&L). It is composed of a principle military representative of general or flag rank appointed by each of the four military services and the Director of the AFSS Center. The Director of the AFSS Center is a civilian; the deputy Director is a military man. At the time of the AFSS Center was created it was charged with administration of the Defense cataloging, Standardization and Material Utilization Programs. The center also investigates the methods, procedures, and processes in the general area of supply systems and the Single Managers in particular. Authority to get involved in these areas is contained in DOD Directive 5154.14 of June 23, 1958 quoted, in part, below:

> In accordance with specific study projects, conducts analyses of the operations of the supply systems of the military services concerned with commercial and noncommercial common items of materiel, to obtain optimum integration

> in the interest of increased military effectiveness and economy. Such studies will include the development of practical steps to foster efficient interservice utilization of assets; to increase the degree of commonality of items; to obtain greater consistency in requirements computation practices (factors, cycles, lead times, and levels) and distribution patterns; and to achieve closer working relationships among the organizational elements concerned with the management of common supply, i. e., inventory control, procurement, distribution, and standardization. Particular attention shall be given to such matters in the commodity areas covered by Single Manager assignments and the Single Department Procurement assignments.

The scope of Single Manager operations and the functions of the center are the two most important recent developments in the field of military supply.

SUMMARY

The many differences existing in the military supply systems seem to be due more to traditions and basic departmental organizations than to different types of supply functions. The dis-similarities that do exist reflect, in large measure, the difference between the commodity management approach as opposed to the weapons systems approach. The Army is organized on a strict commodity basis with requirements determination, procurement, storage and distribution, lodged in a single commodity manager. The Air Force operates primarily on the weapons system approach and the Navy has elements of both systems in its organization which utilizes program and supply support concepts. Since the ultimate goal is maintenance and readiness of weapons systems and since efficient operations dictate that procurement and inventory control functions be performed primarily on a commodity basis, it must be recognized that ultimately both systems must be used.

In comparing the three services supply functions of, requirements determination, storage and distribution, we also find many similarities. The similarities in both organization and methods will enable the services to further integrate in supply areas for greater efficiencies. The impetus for additional integration should come from the individual services. In many instances service rivalries and the desire to perpetuate ones own organization plus the complexities involved, preclude affective integration. One example from the writers experience can be cited. On an island in the Pacific, the Air Force asked the Navy to procure, store and issue their non perishable provisions items. This request was initiated because the warehouses in use by the Air Force had deteriorated to such an extent that they had to be replaced. The Navy had the capability and the Air Force was willing to pay for the service. A Supply Support Agreement was not initiated however, because the local Navy Comptroller indicated that even though the Air Force would make reimbursement, it would be accomplished at the Bureau level and would not, in turn, be passed down to the local Naval supplying activity. Regardless of the merits of the comptrollers decision and the method by which it was handled, the fact that an interservice supply support agreement was not effected cannot be ignored. For this reason, the Air Force was forced to build a costly warehouse complex and the Navy, in close proximity, had excess space available. If such problems are not solved among and between the services, the ASD (S&L) will have to exercise more firm control. If supply problems are not resolved at that level, it is possible that supply integration will be preempted from the Defense establishment and given to an outside agency that is not familiar with military supply problems. Military preparedness therefore, might very well suffer.

Closely allied with and reflecting the problem of supply integration has been the rise in importance of Single Managers. The emergency of these organizations has been the lastest and most important development in an evolving structure of military supply leading toward a more integrated Department of Defense supply system. If the recommendation is accepted by the Department of Defense to establish a Defense Electronics Manager Center, 40% of the 3.7 million items in the military supply system will be under the control of single managers. This 40% will comprise about 50% of item transactions. What is perhaps more important, is that under the proposed system for the DEMC, the AFSS Center will assume for the first time, management responsibilities in a commodity area. In the event this is successful it can logically be assumed that the AFSS Center will be expanded to encompass and control other single manager systems. When this occurs, within perhaps the next ten years, the individual services supply systems will then be concerned only with the retail aspects of supply and management of their principal items.

Although it is difficult to foretell what future developments will bear in the field of military organization, the advent of the intercontinental ballistic missile with nuclear warheads measured in megatons, insures that changes will be radical. All Navy Supply personnel must be kept advised of the changes taking place and particularly of the evolution currently taking place with regard to military supply systems. This has not been done.

Greater emphasis must be given within the Navy to studying supply problems. Navy supply Officers attending the Postgraduate

School should be required to write their final paper on an aspect of supply. Areas of interest and problem areas should be made known to the school by the Bureau of Supplies and Accounts. Supply in the Navy is a full time job. We must never be accused, as we were in RADM Furer's book "Administration of the Navy Department in World War II" (previously cited) that we have---- "A narrow attitude created by unwillingness to surrender --- functions to any other agency, either intra or inter service." Only through constant study and attention by all supply personnel can improvements be made and the readiness of the fleet insured.

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